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1. A method to improve heat dissipation in a magnetic shield, comprising:
providing said shield in the form of a layer of ferromagnetic material on a substrate;
inserting a layer of non-magnetic material, having a thermal conductivity greater
than about 300 W/m.K, between said shield and said substrate; and

5 splitting said shield into two opposing parts separated by a gap.

2. The method described in claim 1 wherein said thermally conductive layer of non-
magnetic material is selected from the group consisting of Cu and NiCu.

3. The method described in claim 1 wherein said thermally conductive layer of non-
10 magnetic material is deposited to a thickness between about 1 and 2 microns.

4. The method described in claim 1 wherein said gap separating said opposing shield
parts is between about 4 and 10 microns wide.

5. A process to form a magnetic shield, comprising:
providing a substrate and depositing thereon a first dielectric layer having a first
15 upper surface;

 onto said first dielectric layer, depositing a layer of a non-magnetic material having
a thermal conductivity greater than about 300 W/m.K;

 patterning said thermally conductive layer so as to expose said first upper surface

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on opposing sides of said thermally conductive layer;

fully covering said thermally conductive layer and said exposed first upper surface with a second dielectric layer and then planarizing until said thermally conductive layer is just exposed, thereby forming a second upper surface;

5 depositing and patterning a ferromagnetic layer on said second upper surface to form coplanar opposing first and second magnetic shields separated by a gap that exposes said second upper surface; and

fully covering said magnetic shields and second upper surface with a third dielectric layer and then planarizing until said magnetic shields are just exposed.

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6. The process described in claim 5 wherein said thermally conductive layer of non-magnetic material is selected from the group consisting of Cu and NiCu.

7. The process described in claim 5 wherein said thermally conductive layer of non-
15 magnetic material is deposited to a thickness between about 1 and 2 microns.

8. The process described in claim 5 wherein said gap separating said opposing shield parts is between about 4 and 10 microns wide.

9. The process described in claim 5 wherein said ferromagnetic layer is deposited to a thickness between about 1 and 3 microns.

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10. A process to manufacture a magnetic read/write head, comprising:

providing a substrate and depositing thereon a first dielectric layer having a first upper surface;

5 onto said first dielectric layer, depositing a layer of a non-magnetic material having a thermal conductivity greater than about 300 W/m.K;

patterning said thermally conductive layer so as to expose said first upper surface on opposing sides of said thermally conductive layer;

10 fully covering said thermally conductive layer and said exposed first upper surface with a second dielectric layer and then planarizing until said thermally conductive layer is just exposed, thereby forming a second upper surface;

depositing and patterning a ferromagnetic layer on said second upper surface to form coplanar opposing first and second magnetic shields separated by a gap that exposes said second upper surface;

15 fully covering said magnetic shields and second upper surface with a third dielectric layer and then planarizing until said magnetic shields are just exposed, thereby forming a third upper surface;

forming, on said third upper surface, a magnetic read-head that is sandwiched between upper and lower dielectric layers;

forming a bottom write-head shield on said upper dielectric layer;

20 forming, on said bottom write-head shield, a magnetic write head having a write gap; and

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planarizing, in a plane normal to said third upper surface, until said first magnetic shield, said read head, said bottom write-head shield, and said write gap are all exposed.

11. The process recited in claim 10 wherein said thermally conductive layer of non-magnetic material is selected from the group consisting of Cu and NiCu.

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12. The process recited in claim 10 wherein said thermally conductive layer of non-magnetic material is deposited to a thickness between about 1 and 2 microns.

13. The process recited in claim 10 wherein said gap separating said opposing shield parts is between about 4 and 10 microns wide.

10 14. The process described in claim 10 wherein said ferromagnetic layer is deposited to a thickness between about 1 and 3 microns.

15. The process described in claim 10 wherein said magnetic read head is a CIP magnetic read head.

15 16. The process described in claim 10 wherein said magnetic read head is a CPP magnetic read head.

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17. The process described in claim 10 wherein said magnetic write head is a double planar write head.

18. The process described in claim 10 wherein said magnetic write head is a Low DC Resistance read head.

5 19. A magnetic shield having good heat dissipation, comprising:
a layer of ferromagnetic material on a substrate;
between said ferromagnetic layer and said substrate, a layer of non-magnetic material, having a thermal conductivity greater than about 300 W/m.K; and
said layer of ferromagnetic material further comprising two opposing parts
10 separated by a gap.

20. The magnetic shield described in claim 19 wherein said thermally conductive layer of non-magnetic material is selected from the group consisting of Cu and NiCu.

21. The magnetic shield described in claim 19 wherein said thermally conductive layer of non-magnetic material has a thickness between about 1 and 2 microns.
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22. The magnetic shield described in claim 19 wherein said gap separating said opposing shield parts is between about 4 and 10 microns wide.

23. A magnetic shield, comprising:

a substrate on which is a first dielectric layer having a first upper surface;

on said first dielectric layer, a layer of a non-magnetic material that does not fully cover said first upper surface, having a second upper surface and a thermal conductivity greater than about 300 W/m.K;

on said first upper surface, a second dielectric layer that fully abuts said thermally conductive layer, having a third upper surface that is coplanar with said second upper surface;

a ferromagnetic layer on said second and third upper surfaces in the form of coplanar opposing first and second magnetic shields separated by a gap; and

a third dielectric layer that just fills said gap.

24. The magnetic shield described in claim 23 wherein said thermally conductive layer of non-magnetic material is selected from the group consisting of Cu and NiCu.

25. The magnetic shield described in claim 23 wherein said thermally conductive layer of non-magnetic material has a thickness between about 1 and 2 microns.

26. The magnetic shield described in claim 23 wherein said gap separating said opposing shield parts is between about 4 and 10 microns wide.

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27. The process described in claim 23 wherein said ferromagnetic layer has a thickness between about 1 and 3 microns.

28. A magnetic read/write head, comprising:

5 a substrate on which is a first dielectric layer having a first upper surface;

on said first dielectric layer, a layer of a non-magnetic material that does not fully cover said first upper surface, having a second upper surface and a thermal conductivity greater than about 300 W/m.K;

10 on said first upper surface, a second dielectric layer that fully abuts said thermally conductive layer, having a third upper surface that is coplanar with said second upper surface;

a ferromagnetic layer on said second and third upper surfaces in the form of coplanar opposing first and second magnetic shield layers separated by a gap;

a third dielectric layer that just fills said gap;

15 on said first and second magnetic shield layers, a magnetic read-head that is sandwiched between upper and lower dielectric layers;

a bottom write-head shield on said upper dielectric layer;

on said bottom write-head shield, a magnetic write head having a write gap; and

all magnetic shields, as well as said read head and said write gap being exposed

20 at one end of the read/write head in a plane normal to said first upper surface.

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29. The read/write head described in claim 28 wherein said thermally conductive layer of non-magnetic material is selected from the group consisting of Cu and NiCu.

30. The read/write head described in claim 28 wherein said thermally conductive layer of non-magnetic material has a thickness between about 1 and 2 microns.

31. The read/write head described in claim 28 wherein said gap separating said opposing shield parts is between about 4 and 10 microns wide.

32. The read/write head described in claim 28 wherein said magnetic read head is a CIP magnetic read head.

33. The read/write head described in claim 28 wherein said magnetic read head is a CPP magnetic read head.

34. The read/write head described in claim 28 wherein said magnetic write head is a double planar write head.

35. The read/write head described in claim 28 wherein said magnetic write head is a Low DC Resistance read head.